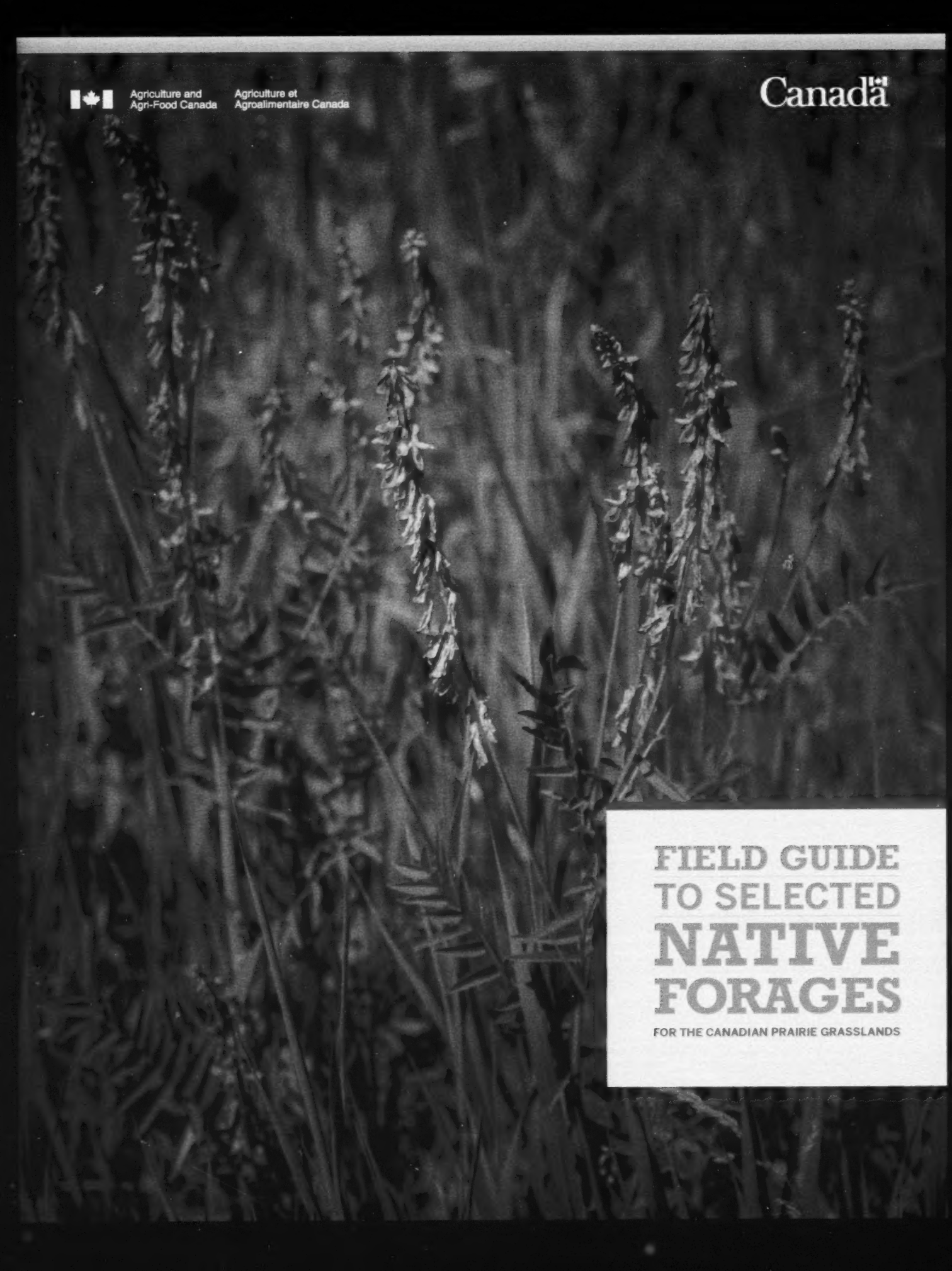

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Canada

FIELD GUIDE TO SELECTED NATIVE FORAGES

FOR THE CANADIAN PRAIRIE GRASSLANDS

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Introduction

Native forages have the potential to provide drought tolerant, low maintenance, and long term stable forage production. Agriculture and Agri-Food Canada (AAFC) has been conducting research on native forages for decades. AAFC researchers recognize their potential benefits and continue working on developing cultivars, some of which are included in this field guide. With genetic enhancements, through selection of desired traits which overcome challenges in establishment and seed production, native forages can provide choices that include; high productivity under a range of environmental factors, improved nutriental value and stand persistence.

This field guide was developed to provide livestock and forage producers, the forage and beef industry, and the general public identification information of native forage species which occur on the Canadian prairies. This guide includes a selection of twenty different native forages including grasses, legumes and a shrub. It includes descriptions of the main identifying characteristics, photographs, and/or line drawings as well as information on the natural habitat, and forage quality for each species. In some cases we have included a "look-a-like" section, to help the user eliminate those plants which may appear most similar.

We have also included a glossary along with associated illustrations to help you understand some of the terms used to describe and identify plant species.

Common names of these plants are listed in the Table of Contents with Latin taxonomic names provided in the narrative.

Enjoy!

Little bluestem

Schizachyrium scoparium (Michx.) Nash var. *scoparium*

General Description

• Long-lived perennial, warm-season tufted/bunch grass • Relatively drought tolerant and adapted to a wide variety of soils in southern Canada • Usually found on dry, well-drained hilltops and steep slopes; often exposed sites with low fertility coarse soils

Roots

• Predominately fibrous and deep-rooted • Short rhizomes on moist sites

Stems/Culms

• Slightly flattened, wiry and purplish; turn reddish-bronze after frost • 30-70 cm long • Sheath smooth, distinctly compressed, keeled, split and open in older leaves

Leaves

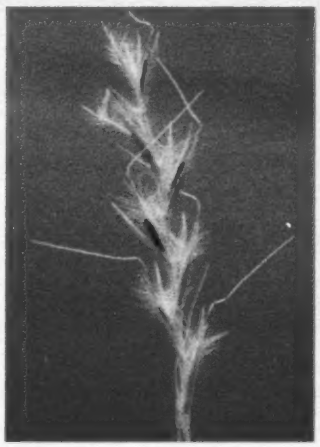
• Flat or folded inward (folded at emergence), 6 mm wide and 15 cm long • Light green to blue-green, turning red when mature • Constricted at base; rough on upper surface and margins • Ligule up 2 mm long, membranous, rounded to squared-off • Auricles absent

Inflorescence

• Distinct white feathery seed head • Inflorescence (narrow raceme) 3-6 cm long; occurs singly, in pairs or in groups • Seeds densely hairy with a bent, twisted awn, 7-15 mm long • Seeds are produced in early fall

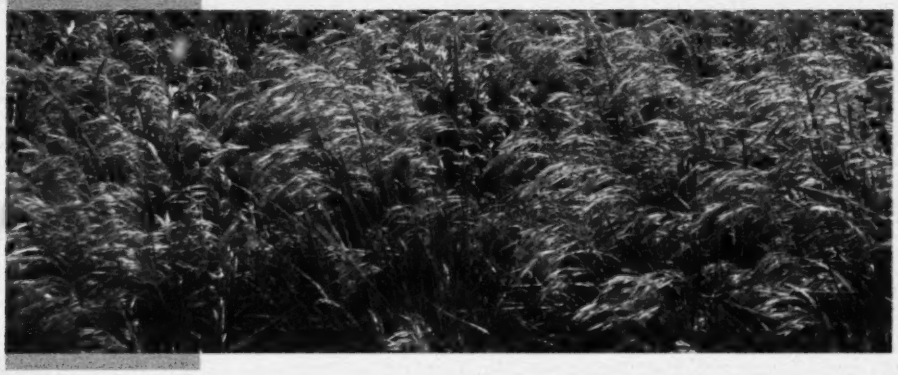
Forage Value

• Good forage quality and palatability when foliage is young and lush; fair to poor at other times • Crude protein levels peak at 15% in June, decline to 5% or less by August, and even lower by winter • Palatability poor after seed head development: the tufted growth form and wiry stems result in seldom grazed 'wolfy' plants



LOOK-A-LIKE:

Big bluestem (*Andropogon gerardi* Vit.) has similar leaf colour, but is taller (1.2 m) with longer leaves (8-50 cm) that are rolled at emergence.



Nodding brome

Bromus porteri (Coult.) Nash

General Description

• Mid-size perennial bunchgrass • Easily distinguished when mature by drooping seed heads • Found throughout North America's Great Plains, from the Prairies south to the Gulf of Mexico

Roots

• Fibrous

Stems/culms

• Flowering stems erect, typically 30-100 cm tall
• Sheaths entire (closed); smooth to hairy

Leaves

• Leaf blade moderately wide (2-4 mm) and long • Short, stiff hairs on underside of blade • Ligule up to 2.5 mm long • Auricles absent

Inflorescence

• Seed head branched and nodding • Composed of many somewhat flattened spikelets, containing multiple large seeds • Seeds covered with coarse, even-length hairs, and tipped with a short awn, up to 3 mm long

Forage value

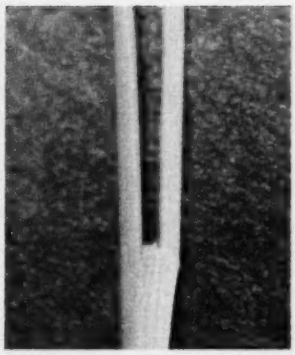
• Forage quality comparable to or better than domesticated species; however, productivity is lower
• Moderate regrowth potential after first harvest

LOOK-A-LIKES:

Japanese brome (*Bromus japonicus* Houtt.) and **Downy brome** (*Bromus tectorum* L.) are both highly invasive winter annual bromes. Their seeds have much longer awns (7-18 mm). Their weedy habits include abundant seed production in early spring, late summer or fall (perennial bromes normally flower in late May thru June).

Meadow brome (*Bromus riparius* Rehmann) is fuzzy and short-awned, but it does not nod/droop as much.

Smooth brome (*Bromus inermis* Leyss.) is hairless, has no awns and is strongly rhizomatous.



Plains rough fescue

Festuca hallii (Vasey) Piper

General Description

• Densely tufted cool-season perennial bunchgrass with thread-like leaves • Found in the transition between the Boreal Forest and the Dry Mixed-Grass Prairie • Also reported in British Columbia, Washington and drier areas of the Great Plains

Roots

• Deep, fibrous roots and short rhizomes

Stems/Culms

• Stems tightly bunched • Flowering stems 25-85 cm tall • Stem wider than the leaf, making a small 'plateau' where leaf joins to sheath • Sheath round to slightly compressed, hairless, with distinct veins • Sheath base scarlet-purple but otherwise pale • After vegetation dies off at the end of the season, sheath remains for multiple years making it very 'crunchy' to walk on • New leaves emerge from among old sheaths in spring

Leaves

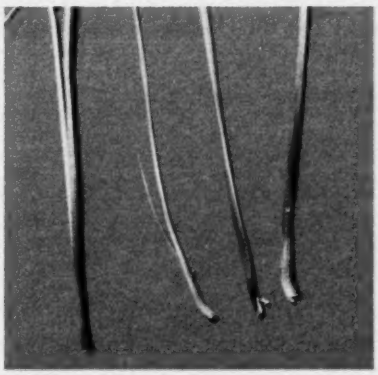
• Thread-like leaves light green to blue green, tightly rolled and rough • If blade can be opened, upper surface will be strongly ridged and rough • Ligule a very short fringe of hairs • Auricles absent

Inflorescence

• Seed heads 5-20 cm long with 1-3 upright branches at each node • Oval seed clusters, up to 9.5 mm long, have 2-4 seeds of 5.5-8.0 mm long • Seeds and glumes usually awnless, or with awns up to 1.3 mm long

Forage value

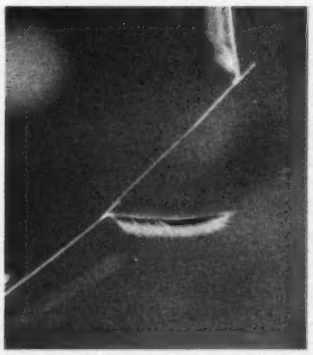
• High protein and digestible carbohydrates, even after curing on the stem • Good quality grazing in fall and winter • Extremely sensitive to spring and early summer grazing



LOOK-A-LIKES:

Kentucky bluegrass (*Poa pratensis* L.) is most likely to be confused with rough fescue, as it has replaced rough fescue over most of its area. Bluegrass leaves are smooth, and folded. Stem bases are not bright scarlet although the sheaths may be light purple. Old sheaths do not persist from one season to the next. Seeds are smaller and more abundant.

Prairie dropseed (*Sporobolus heterolepis* (A. Gray) A. Gray) occurs in some good quality Fescue or Tallgrass Prairies in Manitoba. Its leaves are v-shaped in cross-section, emerging at a sharp angle from the ground. Seeds are much finer.



Blue grama

Bouteloua gracilis (Willd. ex Kunth) Lag. ex Griffiths

General Description

• Long-lived, warm-season, perennial bunch grass • With tillering can form a solid mat or sod • Common in Prairie and Parkland grasslands • Distinguishing feature is its curved mature seed heads, resembling eyebrows

Roots

• Shallow-rooted with short scaly rhizomes
• Sod-forming

Stems/Culms

• Stems erect, short (20-50 cm), slender and smooth
• Sheaths round, smooth to lightly hairy

Leaves

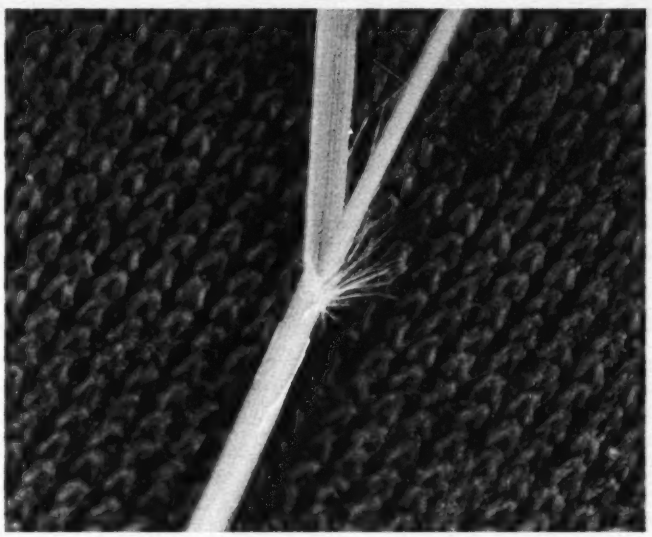
• Green or greyish-green leaves, mostly basal
• Smooth, flat or loosely curled/twisted • 5-25 cm long, up to 3 mm wide • Ligule small, almost non-existent, composed of short, fine hairs • Auricles absent

Inflorescence

• Panicle 2-5 cm long with 1-3 (sometimes 4) spikes
• Spikes comb-like (resemble eyebrows)
• 70-90 spikelets per spike, all on the same side of rachis (flower stalk) • Seeds 3-awned • Base bearded with short hairs • May have a purplish tinge

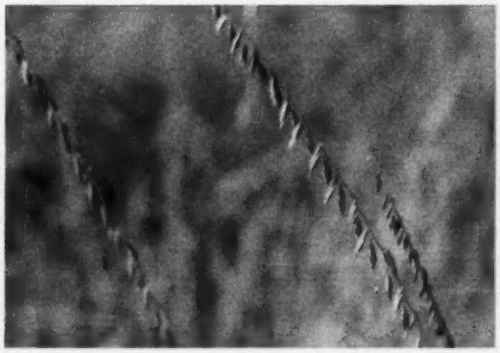
Forage Value

• Provides good quality forage for livestock • Quality best when green; however, it retains much of its nutritional value when dry and provides good fall and winter grazing • Exhibits good drought and grazing tolerance; recovers well with adequate precipitation



LOOK-A-LIKE:

Blue grama is sometimes called buffalo grass; however, true buffalo grass (*Bouteloua dactyloides* (Nutt.) Columbus) has a distinctly different appearance and is very rare on the Canadian Prairies.



Side-oats grama

Bouteloua curtipendula (Michx.) Torr.

General Description

• Medium-sized perennial warm season grass • Easily noticed by its 20-50 small hanging seed clusters regularly spaced along slender spikes • Found throughout the United States and central to Western Canada • Prefers hilly slopes and sandy or gravelly habitats

Roots

• Deep and fibrous • May or may not include short rhizomes, 5-10 cm long • Sod-forming

Stems/Culms

• Flowering stems erect or slanted, appear singly or in clusters, 10-80 cm tall • Sheaths smooth, often purplish, with prominent veins, round in cross-section, split and overlapping, with a pale edge • Collar may have a few to many individual long hairs that have a small bulb at their base

Leaves

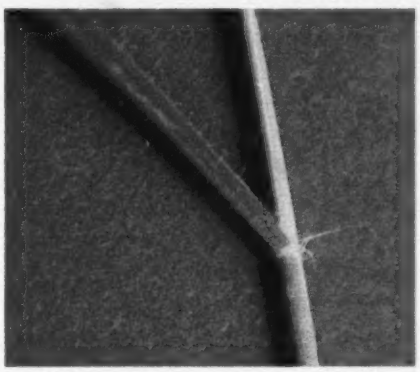
• Evenly distributed along the stem • Flat, or rolled when dry, 2.5-7 mm wide, 2-30 cm long • Rough upper surface, with distinct veins • Along the lower leaf edges, a few to many long individual hairs emerge from small bulbs • Leaves green to blue-green turning orange or pinkish in fall • Ligules short, up to 0.5 mm, and comb-like (ciliate) • Auricles absent

Inflorescence

• Seed head 10-30 cm, purplish when young and straw-coloured when mature • 20-50 very short spikes regularly spaced out along the top of the flowering stem • Weight of spikes causes the slender stem to droop, making it appear that all spikes are on one side; it is actually 2-sided, creating a zig-zag stem when the spikes fall off • Short spikes contain 2-7 spikelets, each encased within a pair of small glumes • Spikelets contain 2-3 florets; only one is fertile • Fertile seeds 3-7 mm long, plus a short awn (up to 6 mm)

Forage value

• Very good feed quality and palatability • Provides abundant forage in its preferred native habitat • Produces low yield in comparison to other familiar grasses due to its short leaves • High seed production despite lower than normal viability percentage • Continued growth during dry conditions thanks in part to its deep root system



LOOK-A-LIKE:

Slender wheatgrass [see page 14]

Prairie sandreed

Sporobolus rigidus (Buckley) P.M. Peterson var. *rigidus*

General Description

• Warm season, sod-forming, grass • Found in northern and central Prairies • Flourishes on sandy, coarse textured soils • Early pioneering species on bare sites • Produces good summer growth, and remains green until frost

Roots

• Extensive fibrous roots system with thick, yellow, scaly rhizomes • Sod-forming; useful in binding soil (e.g. suitable for soil reclamation projects)

Stems/Culms

• Tall, robust, 50-150 cm tall • Sheaths split and smooth, rarely pubescent • Ligule a tuft of fine hairs • Auricles absent

Leaves

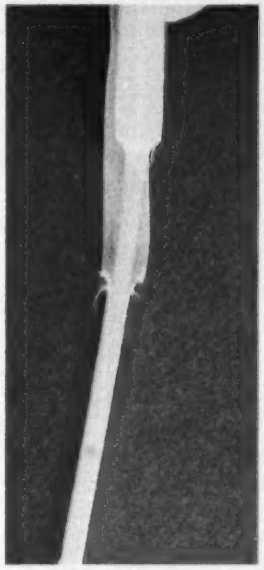
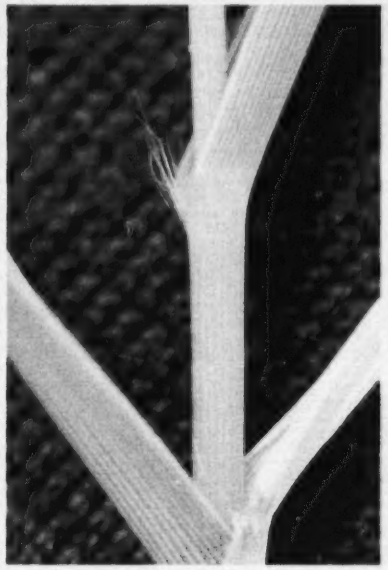
• Wide (4-8 mm), flat and 10-60 cm long • Veins inconspicuous • Hairless, dark green and tapering to a pointed tip

Inflorescence

• Open panicle, with multiple ascending branches 15-35 cm long • Spikelets pale, 6-7 mm long

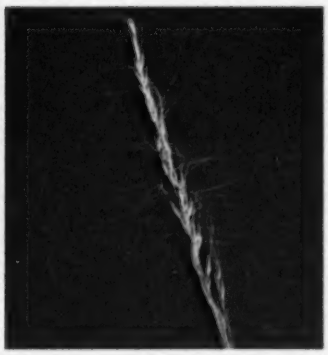
Forage value

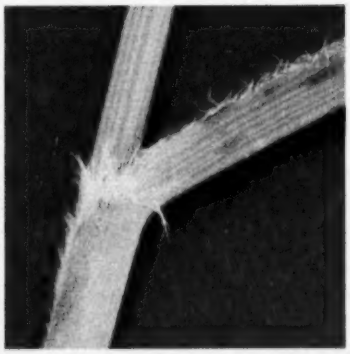
• Forage value only fair with nutrition and palatability issues • Cures well and provides good standing winter feed, and good quality hay if not cut too late • Used mostly for soil stabilization on sandy sites • Good drought tolerance and winter hardiness • Will tolerate relatively heavy grazing pressure

LOOK-A-LIKE:

Switch grass (*Panicum virgatum* L.) has prominently veined leaves and is typically found on moist prairie; rare.





Green needle grass

Nassella viridula (Trin.) Barkworth

General Description

• Cool-season perennial bunchgrass • Prefers moderately dry to moist deep fertile soils • Found throughout North America's Great Plains, Open Montane, Foothills Fescue Grasslands and Parklands • In Mixed-Grass Prairie region, restricted to deeper, more fertile soils, heavy clays and sometimes sandy soils (if water table is high)

Roots

• Fibrous root system, may penetrate 1.5 meters deep in soil

Stems/Culms

• Flowering stems 45-90 cm • Overlapping sheath round, prominently veined, split, hairy near throat, and hair fringed along upper margins

Leaves

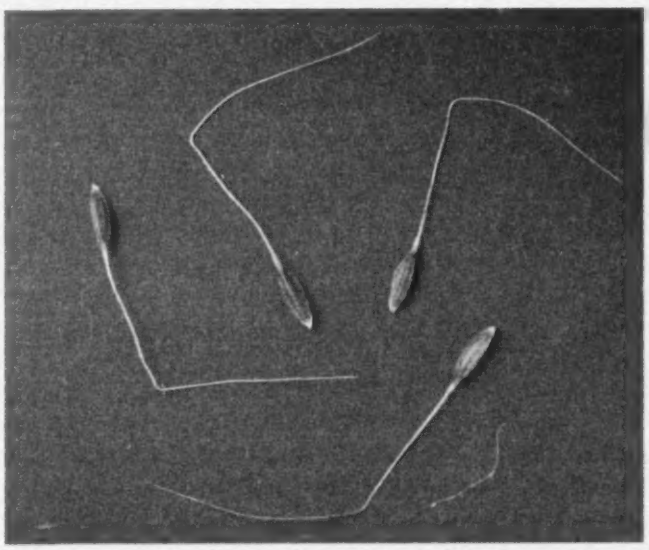
• Dark green, mostly basal leaves, 2-5 mm wide, 10-30 cm long • Prominently veined, rough upper surface, with a prominent midrib below • Rolled at emergence • Collar yellow-green with hairy margins and across back • Ligule 2 mm long, membranous • Auricles absent

Inflorescence

• Seed head (compact panicle) 10-25 cm long • Lower nodes long-hairy • Glumes 7-10 mm long • Lemmas plump and dark-tinged at maturity • Abundant small, black-hair covered seeds • Callus short and blunt • Awns 2-3 cm long, mostly hairless and abruptly bent twice

Forage Value

• Good forage value • Protein content over 20% in spring, declines to 8% in the fall • Remains green and palatable until winter • Plants cure well on the stem providing good quality forage throughout fall and winter



LOOK-A-LIKE:

Awned wheatgrass (*Elymus trachycaulus* ssp. *subsecundus* (Link) Á. Löve & D. Löve) has short straight awns and hairy sheaths when young. Also, its seed head is much more "wheat-like" when mature.

Needle-and-thread grass

Hesperostipa comata (Trin. & Rupr.) Barkworth

General Description

• Cool season perennial bunchgrass • Common and abundant across most landscapes within the Prairies and across western North America • Adapted to medium and coarse textured soils • Moderately drought tolerant, and can be the dominant grass species in several plant communities

Roots

• Fibrous root system

Stems/culms

• Erect • Flowering stems 40-119 cm tall • Sheaths split with margins overlapping, round to slightly compressed • Prominent veins

Leaves

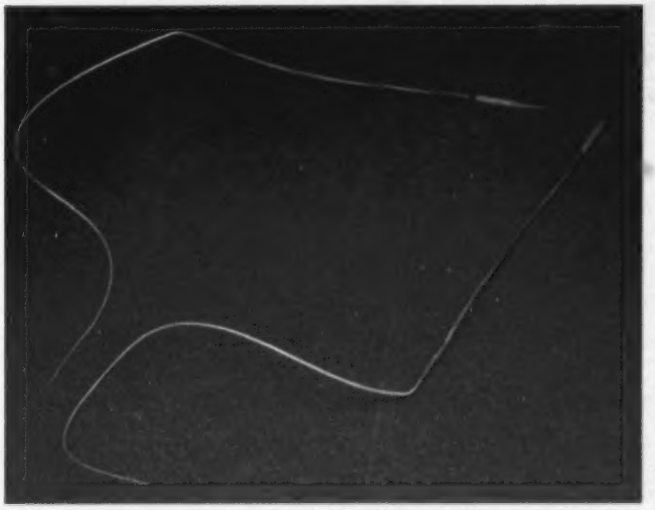
• Dark to grey green, mostly basal • Flat and prominently ridged on the upper surface • Up to 3 mm wide, 5-30 cm long • Ligule prominent, membranous, up to 5 mm long and may be pointed or split • Auricles absent

Inflorescence

• Inflorescence narrow and open, up to 20 cm long; partially contained within the sheath • Seed sparsely pubescent with a sharp callus at the lower end • Awns 10-20 cm long, twisted nearer to the seed head and curly at the tip • Both callus and awns assist in burying/corkscrewing seed into the ground

Forage value

• Good to excellent forage value and palatability • Production starts early in the growing season, goes dormant in mid-summer around seed set and may green up late in the season with sufficient precipitation • Early season grazing on a regular basis can reduce productivity and cause die off • Cures well as hay and winter feed • Injuries to livestock mouths, eyes and skin can occur from the pointed awns and seed lemmas as the seeds reach maturity and begin to fall from the inflorescence

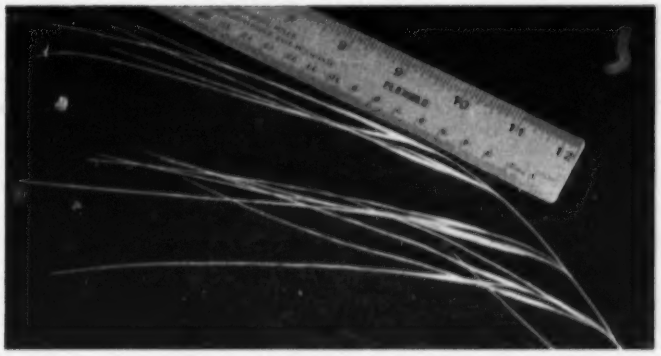


LOOK-A-LIKES:

Green needle grass [see page 9]

Porcupine grass [see page 11]

Western porcupine grass [see page 12]



Porcupine grass

Hesperostipa spartea (Trin.) Barkworth

General Description

• Tall, robust, perennial bunchgrass • Very common on high quality grasslands throughout Manitoba, especially on sandy soils • Rare in eastern Saskatchewan

Roots

• Deep and fibrous • Forms large dense mats near the surface

Stem/Culm

• Erect flowering stems 45-120 cm tall • Sheaths smooth and hairless, with prominent veins

• Sheaths round in cross-section, split and overlapping, with a pale, sometimes hairy edge

Leaves

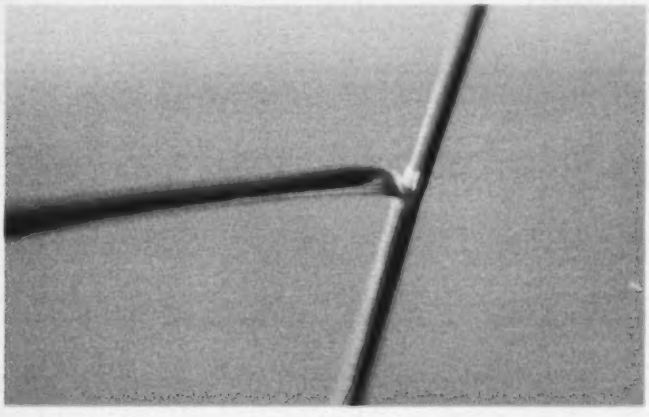
• Long and slender, up to 5 mm wide • Usually flat, or rolling into themselves when dry • Dark green to yellowish-green • Distinctly veined and rough above, often with short, fine hairs • Ligules on young growth up to 3 mm long, pale, stiff and blunt • Ligules on flowering stems up to 7.5 mm long, and blunt to pointy
• Auricles absent

Inflorescence

• Seed head loose, branched, and drooping • Seeds occur singularly, within a pair of long tapering glumes • Pointy, bronze seeds 1.5-2.5 cm long, smooth on the upper shell with stiff brown hairs on the lower half, at the base and margins • Seeds tipped with a rough, straight awn, 9-19 cm long; when dry, cork-screwed and sharply bent twice

Forage value

• Highly palatable, with high protein content in the spring • Stiff hairs, pointy tip, and rough twisty awn of the seed allow it to catch on and penetrate hair, fur and wool, making it hazardous to use for a few weeks in mid-summer • However, the seed period is relatively short, and the value of this productive forage plant should not be overlooked before and after this period



LOOK-A-LIKES:

Green needle grass [see page 9]

Needle-and-thread grass [see page 10]

Western porcupine grass [see page 12]

Western porcupine grass

Hesperostipa curtiseta (Hitch.) Barkworth

General Description

• Mid-sized perennial bunchgrass • Very common on high quality grasslands in Alberta, Saskatchewan, and western Manitoba

Roots

• Fibrous, deep roots

Stems/Culms

• Erect flowering stems are 24-65 cm tall • Sheaths smooth and hairless with prominent veins, round in cross-section

Leaves

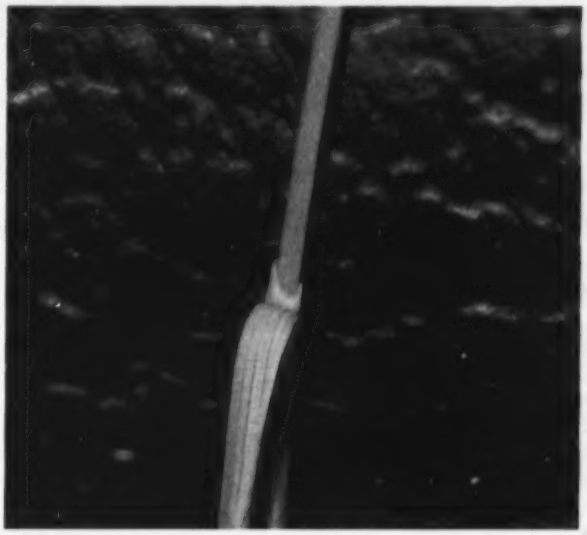
• Long, 1.3-3.0 mm wide, usually flat, or rolled when dry • Green to yellowish green, distinctly veined and rough on the surface, but hairless • Ligules on young growth 0.2-1.0 mm long, cut square or in a very shallow 'U' • Ligules on flowering stems up to 3.5 mm long, square or rounded • Auricles absent

Inflorescence

• Seed head loose, branched, and drooping • Seeds occur singularly within long tapering glumes • Seeds pointy, bronze, 0.9-1.4 cm long, smooth except for stiff brown hairs at the base and margins • Seed with rough, straight awn, 5.0-10.5 cm long; when dry, it is cork-screwed and sharply bent twice

Forage value

• Highly palatable, with good protein content • Seed catches on and penetrates hair, fur and wool, but this hazardous seed production period is relatively short, and the value of this productive forage plant should not be overlooked before and afterwards



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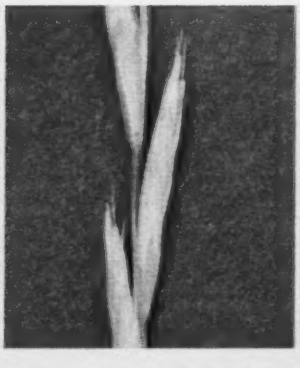
Porcupine grass [see page 11]

Needle-and-thread grass [see page 10]



Northern wheatgrass

Elymus lanceolatus (Scribn. & J.G. Sm.) Gould ssp. *lanceolatus*

General Description

• Long-lived cool season, perennial grass • Throughout the Mixed-Grass Prairie and Parklands • Found on dry slopes, dry open woods, sand hills • Most common on loam and clay loam sites; also well adapted to sandy sites • Moderate salinity tolerance

Roots

• Deep root system, weakly rhizomatous

Stems/Culms

• Erect, flowering stems 40-70 cm tall • Sheaths rounded, split smooth or slightly rough • Midrib often continues only partway down • Margins pale and overlapping • Old, persistent sheaths at the base • Collars divided smooth and light green • Ligules up to 1 mm long, membranous, blunt and lacerate • Auricles up to 2 mm long, clasping, slender, one may be longer than the other but both always present

Leaves

• Flat to slightly rolled inward, light green to blue green, 6 mm wide • Ridged and roughened on the upper surface and smooth below • Attached at a narrow angle to the stem

Inflorescence

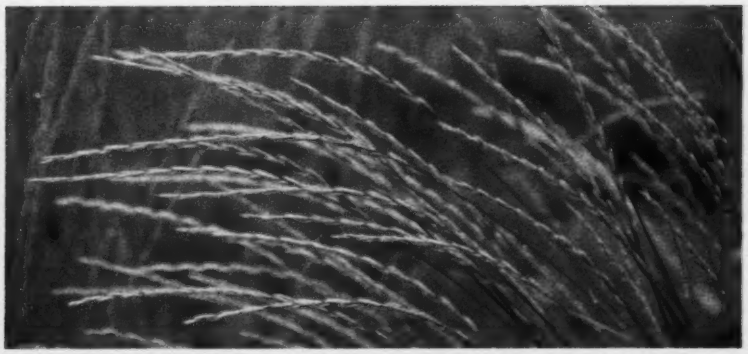
• Spikes 5-20 cm long • Spikelets loose to closely overlapping • Glumes pointed or awn-tipped and shorter than lemma • Glumes and lemmas generally hairy

Forage Value

• Good value for all livestock • Cattle tend to avoid coarse, mature stems • Protein content averages 16% in the spring, declining to 4% in the fall • Digestible energy remains high at 45% throughout growing season

LOOK-A-LIKE:

Western wheatgrass [see page 15]

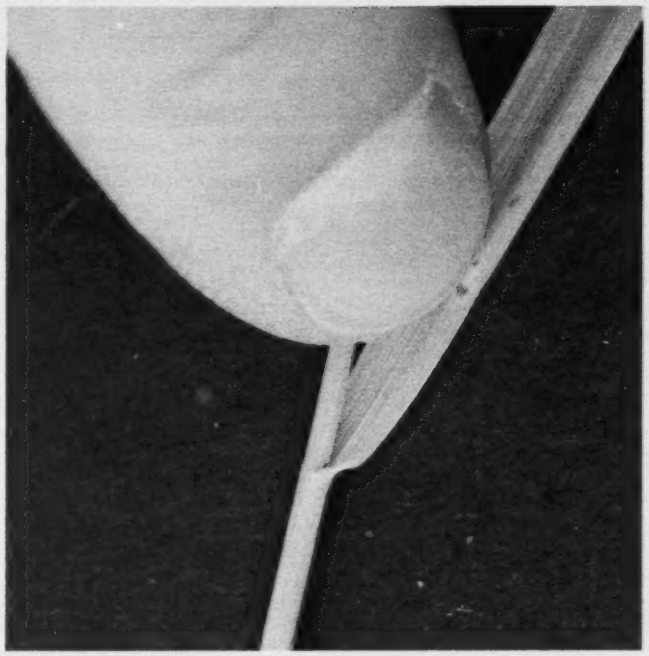


Slender wheatgrass

Elymus trachycaulus (Link) Gould ex Shinners ssp. *trachycaulus*

General Description

• Short-lived (~5 years), loosely tufted native perennial grass • Common throughout most of North America • Superior selections are grown as a quick-establishing seeded forage species • Grows on moist soils • Has some salinity tolerance



Roots

• Short, fibrous

Stems/Culms

• Stems, up to 100 cm tall, often reddish, especially near the base • Sheath hairless, rounded; midrib often continues only partway down • Margins pale and overlapping • Ligules up to 1 mm long, membranous, short, uneven and slightly hairy • Auricles short, 1-2 mm long, or absent

Leaves

• Medium green, 3-6 mm wide, 5-25 mm long
• Flat but often rolled as they emerge from the sheath

Inflorescence

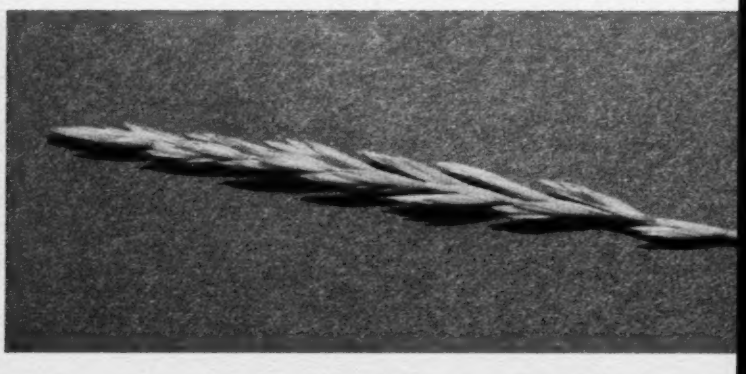
• Spikes 5-20 cm long, often dense • Stiff 1 or 2 spikelets per node, usually slightly overlapping • Lowest spikelet often has a wider separation than the other spikelets so it appears lower than expected • Lemmas short-awned or awnless

Forage value

• Good value for all livestock • Palatable and nutritious into the fall

LOOK-A-LIKE:

Awned wheatgrass (*Elymus trachycaulus* subsp. *subsecundus* (Link) Á. Löve & D. Löve) has long straight awns (1.4-4.0 cm long) and hairy sheaths when young.



Western wheatgrass

Pascopyrum smithii (Rydb.) Barkworth & D.R. Dewey

General Description

• Cool season perennial grass • Common throughout most of North America, within the Mixed-Grass Prairie, Foothills Fescue and Parkland regions • Occurs on all soil textures and most abundant on fine-textured soils
• Salinity and alkalinity tolerance

Roots

• Extensive creeping rhizomes • Sod-forming

Stems/Culms

• Erect, up to 90 cm tall • Sheaths round, split, prominently veined, smooth or rough, sometimes brown or purplish at base • Margins thin and dry, membranous and not green • Ligules up to 1 mm long; membranous, short, uneven and slightly hairy
• Auricles claw-shaped, clasping stem, purplish in colour
• Collars not well defined, hairless, light green, with unequal sides (slanting)

Leaves

• Flat to slightly in-rolled (rolled at emergence), 6 mm wide • Blue-green, strongly veined and ridged, rough on upper surface and smooth on lower
• Blade attached at a 45 degree angle to the stem

Inflorescence

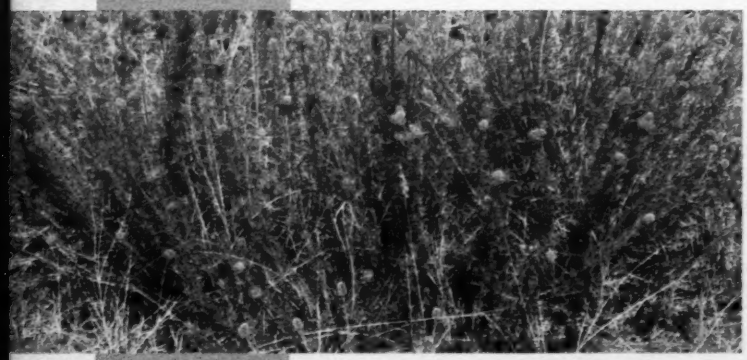
• Spikes 5-20 cm long, often dense, stiff and erect
• Spikelets usually solitary or sometimes 2 per node, overlapping about ½ of each spikelet • Lemmas hairless

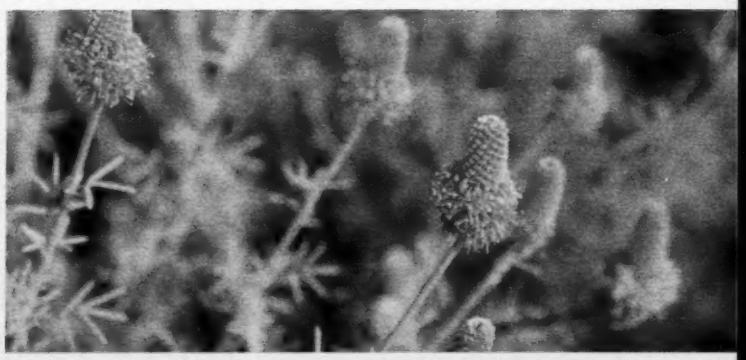
Forage value

• Good value for all livestock • Protein content 18% in spring, declining to 3-4% in the fall •Palatable and nutritious into the fall; cures well on the stem making good winter forage

LOOK-A-LIKE:

Northern wheatgrass [see page 13]





Purple prairie-clover

Dalea purpurea Vent.

General Description

• Common perennial legume • Found on the plains of central North America, in a variety of grassland ecosystems • Grows in open prairie, slopes and hillsides of grasslands, and in drier sites of the Fescue Grassland • Indicator of pristine prairie

Roots

• Deep tap root up to 2 metres deep with a compact woody crown

Stems

• 20-90 cm tall • Several branches grow from the base • Branches reclining to erect, hairy to hairless

Leaves

• Linear, alternate and pinnately compound, divided into 3-5 narrow leaflets • Often rolled, a few centimeters long

Inflorescence

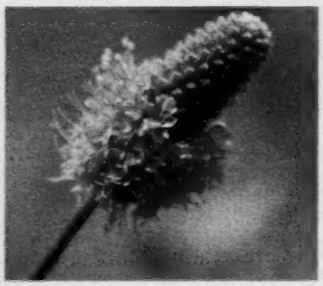
• Compact spike up to 7 cm long containing many purple flowers; at the end of branches • Flowers open starting at base of the head and progress to the top • Entire calyx hairy

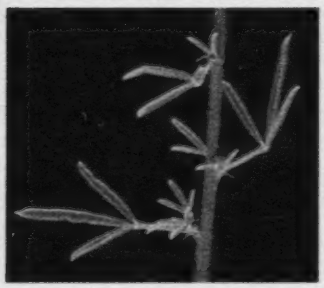
Fruit/Seed

• Pod (legume) contains 1-2 seeds

Forage value

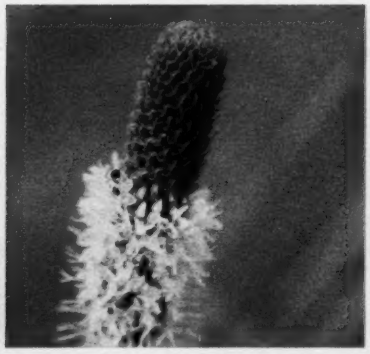
• Excellent for livestock and wildlife • Important component of prairie hay: high in protein, highly palatable and nutritious • May cause bloat, but seldom abundant enough to be a problem





LOOK-A-LIKE:

White prairie-clover [see page 17]



White prairie-clover

Dalea candida Willd.

General Description

• Herbaceous perennial legume • Found primarily on well drained sandy, gravelly and silty soils • Grows in open prairie, slopes and hillsides of grasslands, and in drier sites of Fescue Grasslands; occasionally found in Southern Foothills and Parkland regions • Similar distribution to purple prairie clover

Roots

• Deep tap root up to 2 metres deep with a compact woody crown

Stems

• Several, reclining to erect, ribbed lengthwise, hairless

Leaves

• Alternate, 2-6 cm long, pinnately compound, with 5, 7 or 9 leaflets • Leaflets oblong-oblanceolate, truncate to notched and sometime to narrowly elliptic with a sharp tip, 2-6 mm wide, 1-3 cm long, dark glandular dotted below

Inflorescence

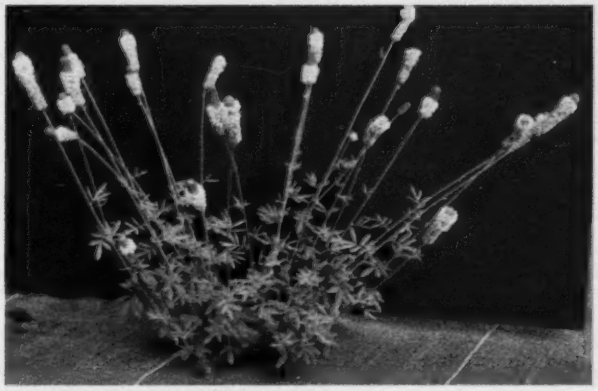
• Flower-heads compact spikes (2-5 cm long) at the end of branches; composed of many small white flowers • Flowers begin opening at the base of the flower-head and progress to the top • Calyx lobes hairy

Fruit/Seed

• Pod (legume), 2.5-4.5 mm long, glandular, contains one brown, smooth seed • Kidney-shaped seeds 1.5-2 mm long

Forage value

• Fair forage value for livestock and wildlife • Drought tolerant • Disappears from plant community when overgrazed



LOOK-A-LIKE:

Purple prairie clover [see page 16]

Alpine sweet-vetch

Hedysarum americanum (Michx. ex Pursh) Britt.

General Description

• Perennial legume • Occurs throughout Canada and the northern Great Plains in a variety of habitats

Roots

• Thick, woody taproot with rhizomes

Stems

• Tall and erect, up to 70 cm • Usually several stems per plant

Leaves

• Compound, typically with 19-31 leaflets • Leaflets narrow to oblong, each up to 35 mm long, smooth to sparsely short-hairy with conspicuous veins on both sides

Inflorescence

• Flowers held in long, loosely packed, upright clusters • Bright pink or pale purple pea-like flowers (1.8 cm long) hang down and curve outward • Lower flower petal (keel) is longer than the upper petal (banner)

Fruit/Seed

• Flat, smooth to sparsely short-hairy pod (legume) containing 2-5 seeds • Pod narrows/constricts between seeds (lobed)

Forage value

• Moderately nutritious, with high protein • Very palatable throughout the growing season to most livestock

LOOK-A-LIKES:

Milk-vetches (*Astragalus* L.) do not have obviously lobed pods, and the lower petal of the flower (keel) tends to be as long as, or shorter than the upper petal of the flower (banner) [see page 20 for Canada milk-vetch].

Some **peavines** and **vetches** (*Lathyrus* L. *and Vicia* L.) are very palatable native legumes that have pink to purple pea-like flowers. However, they also have tendrils at the ends of leaves, and pods are not obviously lobed [see American vetch, page 19].

Sainfoin (*Onobrychis viciifolia* Scop.) is a domesticated forage legume that is becoming more common. It is also tall with erect, pink flowers, but the pods are not obviously lobed.

American vetch

Vicia americana Muhl.

General Description

• Herbaceous perennial legume • Twining or climbing growth that can form tangled masses as part of the undergrowth • Common on the Prairies • Found in a variety of locations including bluffs, moist grasslands with abundant litter and open canopies in the Parklands

Roots

• Rhizomes

Stems

• Smooth, 50-80 cm long • Occur as single stems arising along creeping rhizomatous root

Leaves

• Leaves pinnate with an even number of leaflets, usually 8-14 • Leaflets elliptical, conspicuous veins, each 1.5-3.5 cm long • Terminal leaflet replaced by forked tendrils • Triangular and toothed stipules present at the base of petioles

Inflorescence

• Blue to purple • Individual flowers 1.5-2.0 cm long
• 3-9 flowers in a loose raceme

Fruit/Seed

• Smooth pod (legume), less than 5 cm long
• Pod contains 2-7 seeds

Forage Value

• Nutritious (20% protein in summer, low crude fibre) and palatable • Only forms a minor component in the most plant communities

LOOK-A-LIKE:

Wild peavine and **cream-coloured vetchling** (*Lathyrus venosus* Muhl. ex Willd. and *L. ochroleucus* Hook.) are both climbing forbs with terminal climbing tendrils. The wild peavine has 15-20 flowers in each raceme and pods are veiny. The vetchling can be distinguished by its cream flowers.

Canada milk-vetch

Astragalus canadensis L.

General Description

• Short-lived (3-4), herbaceous perennial legume
• Common and widespread, found throughout North America in diverse habitats

Roots

• Creeping root system

Stems

• Tall and erect, usually in bunches • Generally green and smooth; may have some fine hairs

Leaves

• Compound with numerous leaflets • Leaflets up to 3 cm long; may appear smooth, but actually have fine thin hairs pressed against the surface

Inflorescence

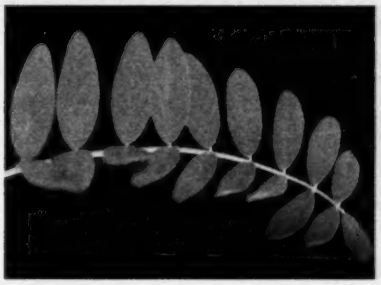
• Greenish yellow or cream flowers in densely packed oblong clusters, 8-10 cm long • Pea-like flowers curve upward

Fruit/Seed

• Cylindrical, green to brown pod (legume), 1-1.5 cm long
• Smooth to slightly short-hairy • Erect and densely clustered on the stem and rattle when dry

Forage value

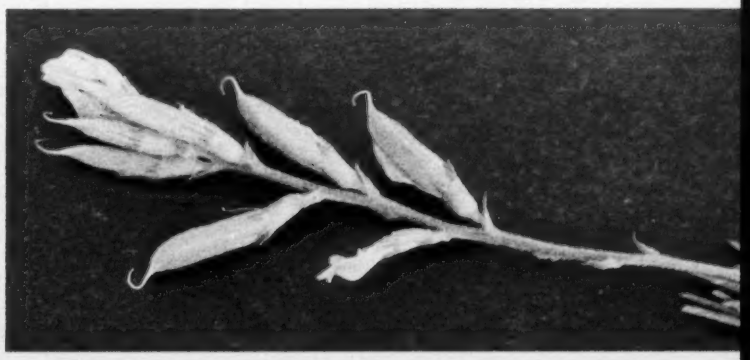
• High protein • Mowing or grazing to set back seed production may improve its persistence
• Palatable to cattle, but it should be correctly identified as it resembles poisonous locoweed



LOOK-A-LIKES:

Cicer milk-vetch (*Astragalus cicer* L.) is a common introduced forage legume, similar in size and flower structure to Canada milk-vetch. One key difference is at maturity: pods are round and jet black.

Locoweeds (*Oxytropis* DC.) are poisonous to cattle when consumed in large quantities. Their flower clusters are on separate stems from the compound leaves, and both emerge from the base of the plant rather than branching from a common stem, like in milk-vetches. They can have cream-coloured or purplish flowers.



Slender milk-vetch

Astragalus flexuosus (Hook.) Dougl. ex G. Don

General Description

• Perennial legume • Found in Prairies or Parkland regions across the Prairie Provinces

Roots

• Stout, creeping rhizomes

Stems

• Solitary or few together, slender, straggly
• 30-50 cm long

Leaves

• Pinnate with 11-25 linear leaflets • Leaflets 1.0-1.5 cm long, often folded along the midrib with a rounded to squared-off tip, hairy on the bottom and smooth on top

Inflorescence

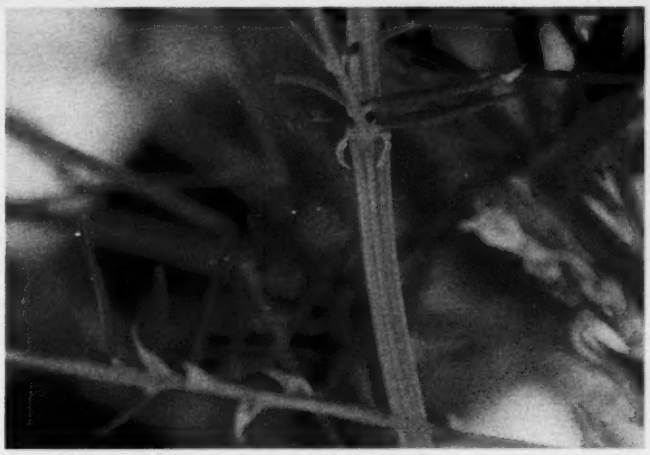
• Inflorescence 5-10 cm long when flowering, up to 15 cm when mature with fruit • Pea-like flowers white to reddish-purple or pink

Fruit/Seed

• Slender pod (legume), 1.0-2.5 cm long, green with reddish specks or streaks and short hairs • Pods spread out or hang pendulously from the stalk

Forage value

• There is some uncertainty over the forage value of slender milkvetch but the 'Alberta Range Plants and their classification' list it as fair



LOOK-A-LIKE:

Narrow leaved milk-vetch (*Astragalus pectinatus* (Hook.) Dougl. ex G. Don) is more upright and clump-like with yellowish flowers.

Winterfat

Krascheninnikovia lanata (Pursh) A. Meeuse & A. Smit

General Description

• Erect to spreading, low-growing, long-lived half-shrub • Found in Mixed-Grass region • Highest abundance on north slopes and dry sites • Salinity and alkalinity tolerance

Roots

• Extensive fibrous root system just below soil surface with a deep penetrating taproot

Stems

• Predominantly upright, grey to reddish-brown • Central woody stem (trunk) is grey-brown and arises from a woody crown • Annual secondary stems are 20-122 cm tall (occasionally taller), densely hairy • Stems herbaceous on dwarf forms and herbaceous to woody throughout on taller forms

Leaves

• Thin with rolled edge, up to 4 cm long • Covered with dense red or white hairs giving plant grey-green or rust-green appearance • Remain on the plant overwinter, falling off in spring with the onset of new growth

Inflorescence

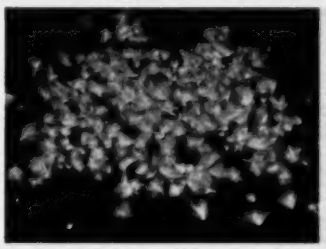
• Flower heads (spikes) held above the plant at the ends of branches • Small, yellow-green flowers begin opening in July • Flowers male (upper portion of spike) or female (lower portion of spike) (monoecious) • Long/silky-haired bracts on female flowers

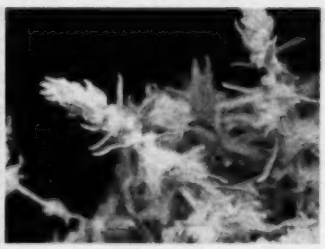
Fruit/Seed

• Silky-haired bracts enclose single small (1 000 000 seeds/kg) oval seed (5 mm long) • Ripens in September

Forage value

• Good forage value: delivers more than enough protein and phosphorous to satisfy livestock (including lactating cows) needs from fall through winter • Very palatable to livestock and wildlife • Protein levels peak in spring (15%), remain high into fall (14%) and dip slightly over winter (8-11%) • Organic matter digestibility (OMD) stays constant throughout the year (55-65%)





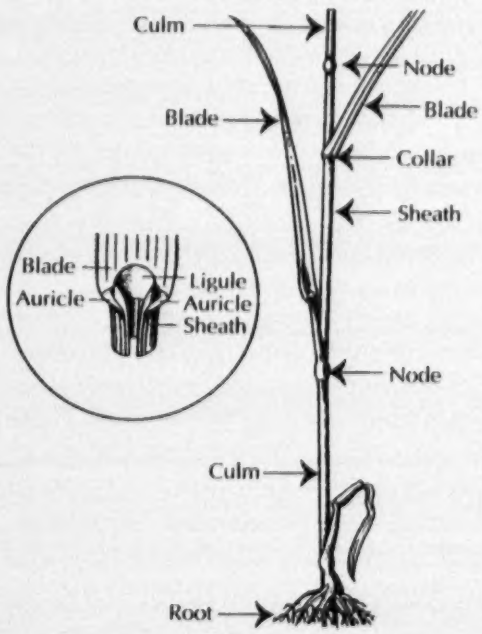
LOOK-A-LIKE:

Sagebrush (*Artemisia cana* Pursh) leaves produce a distinctive 'sage' smell when crushed. Yellow flowers are held in narrow leafy panicles instead of spikes.

Glossary of Terms

auricle - An ear shaped appendage, or the ear at the base of a leaf.
awn - A bristle, often found on grass flowers.
banner - the uppermost petal in a legume flower.
basal - At the bottom of the plant or the bottom of any other structure.
bracts - A small leaf or scale, often borne below a flower or flower cluster.
bunchgrass - Grass with the habit of stems growing from the ground as a cluster.
callus - A small hard protuberance.
calyx - The outer floral ring, or sepals, usually green, but sometimes brightly coloured.
ciliate - Having marginal hairs.
collar - The backside of where the leaf and sheath join together.
compound leaf - A leaf composed of two or more leaflets.
crown - The place where the stem and root meet.
culm - The stem of a grass or sedge.
fibrous roots - A system of many fine roots.
glandular - Bearing glands.
glumes - A scaly bract on the floral parts of grasses and sedges.
half-shrub - Perennial plant that the stems die back to a woody base each winter.
herbaceous - Pertaining to a herb.
inflorescence - The flowering part of a plant: An arrangement of flowers in a cluster.
keel - The two lower united petals of a legume flower.
lacerate - Irregularly cleft or cut, as if torn.
leaflet - A division of a compound leaf.
lemma - The lower of the two bracts enclosing a grass flower.
ligule - A membranous appendage on the inner side of the leaf sheath at its junction with the blade.
margin - The edge.
monoecious - Having male and female flowers on the same plant.
oblanceolate - Of a leaf, much longer than wide, broadest near the tip, and tapering toward the place of attachment.
panicle - A branched cluster of flowers, each stalked the lower branches longest and opening first.
petiole - A stalk of a leaf.
pinnate - Of a compound leaf or frond, with leaflets arranged on each side of a common axis.
pubescent - Covered with hairs.
raceme - A flower cluster with each flower borne on a short stalk from a common stem.
rachis - The axis of a spike or compound leaf.
rhizome - An underground, root-like stem.
sheath - A long tubular structure surrounding some part of a plant.
sod-forming - A grass with the habit of growing in a dense mat of shallow roots.
spike - A flower cluster, the individual flowers of which are stalkless, borne on a common stalk.
spikelet - A secondary spike, especially in grasses and sedges.
stipules - An appendage at the base of a leaf.
taproot - A root structure is dominated by one thick vertical.
tillering - Secondary stem(s) produced by grass or grass-like plants.
truncate - With a squared end.
tufted - A plant with the habit of stems growing from the ground as a cluster.

The Grass Plant Parts



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